SW/JFR/ROC 4A

STATE OF COLORADO

Roy Romer, Governor
Patti Shwayder, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION
http://www.cdphe.state.co.us/hm/

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-3300
Fax (303) 759-5355

222 S. 6th Street, Room 232
Grand Junction, Colorado 81501-2768
Phone (970) 248-7164
Fax (970) 248-7198

Colorado Department
of Public Health
and Environment

January 30, 1998

Bob April
Regulatory Liaison
Dept. of Energy
Rocky Flats Field Office
P.O. Box 928
Golden, CO 80402-0928

Re: Water Treatment Plant Sludge

Dear Mr. April:

I have had your information concerning the disposal of water treatment plant sludge reviewed by a health physicist. Due to the small quantity of the material and the radiation content, it may be disposed of in the Site landfill. The sludge must be placed under at least three feet of cover material.

If you have any questions concerning this matter I may be reached at 303/692-3445.

Sincerely,

Glenn F. Mallory
Solid Waste Unit Leader
Compliance Program

cc Jefferson County
file

ADMIN RECORD

1/4

OU07-A-000569

SW/JFR/ROC 4A

Department of Energy

ROCKY FLATS FIELD OFFICE
P.O. BOX 928
GOLDEN, COLORADO 80402-0928

97-DOE-05590

DEC 16 1997

Mr. Glenn Mallory, Unit Leader
Hazardous Materials & Waste Management Division/Solid Waste Unit
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

DEC 18 1997

Dear Mr. Mallory:

Ref: Colorado Code of Regulations, Part 6 CCR 1007-2, Section 12

The Department of Energy (DOE), as the owner and operator of the Rocky Flats Environmental Technology Site (Site), requests approval to dispose of the estimated five (5.0) cubic yards of water treatment plant (WTP) sludge accumulated in the drying beds adjacent to Building 124 pursuant to the reference above. In accordance with Paragraph 12.2.1, Colorado Department of Public Health and Environment (CDPHE), disposal guidance is required when the total alpha activity of the sludge exceeds forty picocuries per gram (40pCi/gr) of dry sludge. The current average total alpha activity of the sludge in the drying beds is 79 pCi/gr.

Background Information. In July of this year, the operation of the Site WTP initiated a change in the type of chemicals used to coagulate solids in the raw water to the system. The new coagulation chemicals are polyaluminum chloride (PAC) formulation. The PAC produces a better quality water, is often used as a replacement for inorganic salts or primary coagulants such as alum, and generates up to 70 percent less sludge. The PAC coagulants generate a different type of sludge material and the goal is to remove the alum sludge from the beds so it does not mix with a different sludge type.

Enclosure 1 provides total alpha activity analytical results dated May 19, 1997, indicating an average activity of 79 pCi/gr, with a range of 58 to 92 pCi/gr. Enclosure 2 reports the pH and total solids values for the WTP sludge as 7.4 s.u. and 72.0 percent solids, respectively. This sample was collected before the operation change took place. Enclosure 3 reports the Paint Filter Test results for the sludge as absence, meaning 'no free liquids'.

Our raw water is purchased from the Denver Water Board and is delivered via commercial conveyance systems (i.e. canals and pipes) to the Site. Natural-Occurring-Radiological-Material (NORM) is present in the water along with the solids and sediments when delivered to the Site. The source of the NORM is the erosion of the

minerals through runoff and groundwater transport, and both dry and wet deposition of radioactive material from the atmosphere. Radiological Engineering has evaluated the water treatment plant facilities and operations, and determined the operations prevent Department of Energy controlled radioactive material from entering the process system.

With the exception of the total alpha activity limit of 40 pCi/gr, the sludge meets the requirements of Part 6 of the CCR 1007-2, Section 12. However, based upon the Radiological Engineering evaluation which has determined the WTP sludge to be non-radioactive in accordance with the DOE 'No Radioactivity Added Waste Verification Program', we request written approval to place the five cubic yards of material in the Site landfill.

If you have any questions in regards to this issue, please contact John Stover of my staff at (303) 966-9735.

Sincerely,

Bob April, Group Lead
Regulatory Liaison

Enclosures

cc w/Encs:
E. Kray, CDPHE
J. Legare, AMEC, RFFO
M. McCann, OCC, RFFO
R. Sarter, CD, RFFO
S. Slaten, RLG, RFFO
J. Stansberry, CAMD, RFFO
J. Stover, RLG, RFFO
B. Wallin, S&H, RFFO
B. Estabrooks, K-H
K. North, K-H
D. Levinskas, DCI
M. Papp, DCI
D. Webb, DCI
D. Kidd, DCI

Enclosure 1

KAISER-HILL COMPANY, LLC.
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
P.O. BOX 464
GOLDEN, COLORADO 80402

ENVIRONMENTAL LABORATORY
BUILDING 881

RADIOCHEMISTRY GROSS ALPHA/BETA REPORT SDG NUMBER:97A1744 DATE: 07/22/97

Gross Alpha/Gross Beta Analysis Results

Customer Sample ID	LIMS #	Gross Alpha pCi/g ± 2σ	Gross Beta pCi/g ± 2σ	QC Batch	Sys/Det#	Analysis Date
124-97-05-19-AS-0	126996/1	92 ± 11 MDA 13	74 ± 7 MDA 5	97AB136	TN3/A1	07/14/97
124-97-05-19-AS-0	126996/1 D	61 ± 8 MDA 7	49 ± 5 MDA 5	97AB136	TN3/A2	07/14/97
124-97-05-19-AS-0	126996/2	85 ± 12 MDA 15	75 ± 7 MDA 5	97AB141	TN3/A1	07/21/97
124-97-05-19-AS-0	126996/3	75 ± 10 MDA 13	74 ± 7 MDA 5	97AB141	TN3/A2	07/21/97
124-97-05-19-AS-0	126996/2 D	58 ± 9 MDA 10	53 ± 5 MDA 4	97AB141	TN3/A3	07/21/97
124-97-05-19-AS-0	126996/3 D	71 ± 10 MDA 11	60 ± 5 MDA 4	97AB141	TN3/A4	07/21/97

Preparation Blank

QC Batch	Preparation Date	Prep Blank Alpha pCi/g ± 2σ	Prep Blank Beta pCi/g ± 2σ	Sys/Det#	Analysis Date
97AB136	07/08/97	0.5 ± 1.2 MDA 2.0	-1.0 ± 2.0 MDA 3.6	TN3/A3	07/14/97
97AB141	07/15/97	0.1 ± 0.4 MDA 0.7	-0.5 ± 0.8 MDA 1.4	TN4/B2	07/21/97

Laboratory Control Sample (LCS)

QC Batch	Lab Control Sample	Observed Activity (pCi/ml ± 3σ)	Standard Value (pCi/ml ± 3σ)	Sys/Det#	Analysis Date
97AB136	CSL 610935 (^{241}Am)	10.8 ± 3.6	10.0 ± 0.7	TN3/A4	07/14/97
97AB136	CSL 610934 (^{90}Sr)	9.1 ± 3.3	9.8 ± 0.7	TN3/A4	07/14/97
97AB141	CSL 610935 (^{241}Am)	9.8 ± 3.4	10.0 ± 0.7	TN3/B3	07/21/97
97AB141	CSL 610934 (^{90}Sr)	7.8 ± 3.3	9.8 ± 0.7	TN3/B3	07/21/97

Chemist Approval K.M. Hagglund Date: 7/22/97
K.M. Hagglund

Chemist Review N.K. Harward Date: 7/22/97
N.K. Harward

Enclosure 2

7141744

Post-it® Fax Note 7671	Date 7/5/97	# of pages ▶ 1
To Norm Stoner	From Kurt Dill	
Co./Dept. Kaiser Hill	Co. Quanterra	
Phone #	Phone #	
Fax # 966-3500	Fax #	

General Inorganics

Client Name: Kaiser-Hill
Client ID: 124-97-05-19-AS01
Lab ID: 055303-0001-SA
Matrix: SEDIMENT
Authorized: 22 MAY 97

Sampled: 19 MAY 97
Prepared: See Below

Received: 21 MAY 97
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total as CaCO3 at pH 4.5	83.3	mg/kg	50.0	SM 2320	12 JUN 97	17 JUN 97
Alkalinity, Bicarb. as CaCO3 at pH 4.5	83.3	mg/kg	50.0	SM 2320	12 JUN 97	17 JUN 97
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	mg/kg	50.0	SM 2320	12 JUN 97	17 JUN 97
Alkalinity, Hydrox. as CaCO3	ND	mg/kg	50.0	SM 2320	12 JUN 97	17 JUN 97
Chloride	130	mg/kg	25.0	300.0 Mod.	12 JUN 97	13 JUN 97
Ammonia as N	6.9	mg/kg	5.0	350.1	12 JUN 97	26 JUN 97
Nitrate as N	0.93	mg/kg	2.5	300.0	NA	13 JUN 97 J
Orthophosphate as P	ND	mg/kg	2.5	300.0	12 JUN 97	13 JUN 97
pH	7.4	units	--	9045	28 MAY 97	28 MAY 97
Sulfate	42.4	mg/kg	25.0	300.0	12 JUN 97	13 JUN 97
Total Kjeldahl Nitrogen as N	7940	mg/kg	50.0	351.2	NA	13 JUN 97 t
Total Organic Carbon	12.0	mg/kg	0.20	415.1	04 JUN 97	05 JUN 97
Total Organic Halogen as Cl	1.0	mg/kg	5.0	9020	NA	02 JUL 97 J
Total Solids	72.6	%	0.1	160.3 Mod.	NA	13 JUN 97

Note J : Result is detected below the reporting limit or is an estimated concentration.

Note t : Sample diluted due to the concentration of target compounds.

ND = Not detected
NA = Not applicable

Reported By: Adam Alban

Approved By: Richard Persichitte

** TOTAL PAGE.001 **

Inclosure 3

Date: 10/01/97
Page 1 - B

PRELIMINARY REPORT OF ANALYSIS

Ms V L Ideker
Kaiser-Hill Company LLC
Analytical Projects Office,
RFETS POB 464 Bldg 881 Rm212
Golden, CO 80402-0464

Lab Job Number: 018410 RFP002
Date Samples Received: 09/26/97
Report ID Number: 97D2878
Customer PO Number: ~~KH700326EP6~~ 700637 unit

ALR Designation:	97-A21709
Client Designation:	124-97-09-26-AS01
Sample Location:	124 HLD
Location II:	
Date/Time Collected	09/26/97 10:30

OK
WHH
10-1-97

General Chemistry (results in mg/L unless noted):

% Free Liquids (Paint Filters) ()	ABSENCE

NOTES:

All results reported on a dry weight basis.

Scheduled sample disposal/return date: , .

XXXXXXXXXXXXXXXX

Trudy L. Scott
Laboratory Manager

SW/JFR/ROC 4A

SWJFRROC 4A

ROCKY FLATS SOLID WASTE LANDFILL

0

STORAGE LOC:

9/9

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